

aequationes mathematicae

Vol. 23, 1981

University of Waterloo, Ontario Canada
Birkhäuser Verlag, Basel · Boston · Stuttgart

Subscription per volume:
sFr. 100.-/US\$66.50
Single copy:
sFr. 38.-
1-2 volumes of 3 numbers
each year

aequationes mathematicae is published by the University of Waterloo and Birkhäuser Verlag. Price per (three issues) is 100 Swiss francs/US\$66.50 including postage and costs of mailing, payable at the office publisher, Birkhäuser Verlag in Basel, Switzerland, or through your bookseller.

The journal will publish papers in pure and applied mathematics in general but, in particular, papers on functional equations, combinatorial and numerical analysis. The languages in which papers will generally be accepted are English, French, and German.

Types of manuscripts that will be considered for publication include original research papers, problems and their solutions, expository papers and, as short communications, self-contained abstracts of papers which have been accepted for publication either by this or some other journal with a referee system.

Manuscripts of papers should be submitted to the Editorial Office or to a member of the editorial board.

Authors of papers should send the original and two additional copies. Since it is the policy of the journal to publish in advance short communications of all results it accepts for publication, authors should include with the original submissions a self-contained abstract of their paper of length 25-100 lines, which contains a statement of the results in the paper. Authors should also include an AMS classification for their paper.

EDITORS

Professor A. M. Ostrowski
(Universität Basel)
*CH-6926 Montagnola,
Certenago, Switzerland
Honorary Editor in Chief

Professor J. Aczél
University of Waterloo
Waterloo, Ont., Canada N2L 3G1
Editor in Chief

Professor L. J. Dickey
University of Waterloo
Waterloo, Ont., Canada N2L 3G1
Managing Editor

Prof. J. Baker
Univ. of Waterloo
Waterloo, Ont.,
Canada N2L 3G1

Prof. W. Benz
Univ. Hamburg
D-2 Hamburg 13, FRG

Prof. G. Choquet
(Univ. de Paris VI)
*16, Avenue d'Alembert
F-92160 Antony Seine, France

Prof. L. Collatz
Univ. Hamburg
D-2 Hamburg 13, FRG

Prof. H. S. M. Coxeter
Univ. of Toronto
Toronto, Ont., Canada M5S 1A1

Prof. P. Erdős
Math. Inst. Hung. Acad. Sci.
H-1053 Budapest, Hungary

Prof. I. Fenyő
(Technical Univ. Budapest)
* Istenehyi út 48a
H-1125 Budapest, Hungary

Prof. J. A. George
Univ. of Waterloo
Waterloo, Ont., Canada N2L 3G1

Prof. B. Grünbaum
Univ. of Washington
Seattle, WA 98105 USA

Prof. O. Haupt
(Univ. Erlangen-Nürnberg)
* Spardorfer Str. 45
D-852 Erlangen, FRG

Prof. D. M. Jackson
Univ. of Waterloo
Waterloo, Ont.,
Canada N2L 3G1

Prof. M. Kuczma
Silesian University
P-40-007 Katowice, Poland

* = Home address

Prof. J. W. Lawrence
Univ. of Waterloo
Waterloo, Ont.,
Canada N2L 3G1

Prof. J. D. Lawson
Univ. of Waterloo
Waterloo, Ont.,
Canada N2L 3G1

Prof. M. A. McKiernan
Univ. of Waterloo
Waterloo, Ont., Canada N2L 3G1

Prof. R. C. Mullin
Univ. of Waterloo
Waterloo, Ont., Canada N2L 3G1

Prof. C. St. J. A. Nash-Williams
Univ. of Reading
Whiteknights, Reading RG6 2AX
England

Prof. C. T. Ng
Univ. of Waterloo
Waterloo, Ont., Canada N2L 3G1

Prof. G. Pickert
Justus Liebig-Univ.
D-63 Giessen, FRG

Prof. F. Radó
(Babeş-Bolyai Univ.)
* Alea Baita 5/29
R-3400 Cluj-Napoca, Roumania

Prof. L. B. Richmond
Univ. of Waterloo
Waterloo, Ont., Canada N2L 3G1

Prof. H. Rund
Univ. of Arizona
Tucson, AZ 85721 USA

Prof. B. M. Schein
Univ. of Arkansas
Fayetteville, AR 72701 USA

Prof. M. H. Schultz
Yale Univ.
New Haven, CT 06520 USA

Prof. B. Schweizer
Univ. of Massachusetts
Amherst, MA 01002 USA

Prof. A. Sklar
Illinois Inst. of Technology
Chicago, IL 60616 USA

Prof. R. G. Stanton
Univ. of Manitoba
Winnipeg, Man.,
Canada R3T 2N2

Prof. J. Todd
California Inst. of Technology
Pasadena, CA 91109 USA

Prof. W. T. Tutte
Univ. of Waterloo
Waterloo, Ont.,
Canada N2L 3G1

PUBLISHER

for USA and Canada:
for all other countries:

EDITORIAL OFFICE:

Birkhäuser Boston Inc., 380 Green Street, Cambridge, MA 02139/USA

Birkhäuser Verlag, P.O. Box 34, CH-4010 Basel/Switzerland

University of Waterloo, Faculty of Mathematics, Waterloo, Ontario, Canada N2L 3G1

ISSN 0001-9054 Printed in Switzerland

Copyright

It is a fundamental condition of publication that submitted manuscripts have not been published, nor will be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce, distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature, translations. Photographic reproduction, microform, or any other reproduction of text, figures or tables from this journal is prohibited without permission obtained from the publisher.

© 1981 Birkhäuser Publishers, P.O. Box 34, CH-4010 Basel/Switzerland

For users in the USA:

The appearance of the code on the top of the first page of each article in this journal indicates the copyright owner's consent that copies of articles may be made for personal or internal use, or for the personal or internal use of specific clients. However, this consent is given on the condition that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc., 27 Congress St., Salem, Mass. 01970, for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. For copying from back volumes of this journal see Permissions in the Copyright: Publisher's Fee List of the CCC.

For users in the Federal Republic of Germany:

All rights reserved (including those of translation into foreign languages). No part of this journal may be reproduced in any form by photoprint, microfilm, or any other means - nor transmitted or translated into a machine language without the written permission of the publishers. Only single copies of contributions, or parts thereof, may be reproduced for personal use. In such cases, a copyright fee must be paid to the VG WORT, Abteilung Wissenschaft, Goethestrasse 49, 8000 München 2, Germany, to whom conditions of payment can be obtained on request.

Obituaries

- HAUPT, O.: Georg Aumann, 1906–1980, 129.
 ACZÉL, J.: Miklós Hosszú in Memoriam (3.7.1929–6.4.1980), 1.

Survey Papers

- GOULDEN, I.P., and JACKSON, D.M.: Sequence enumeration, 6.
 JACKSON, D.M., see GOULDEN, I.P., 6.
 MAVRON, V.C.: Constructions for resolvable and related designs, 131.

Research Papers

- BENZ, W.: Die Heavisidefunktion als spezielle Lösung ihrer Funktionalgleichung, 151.
 BERGMAN, G.M.: Hyperidentities of groups and semigroups, 50.
 CLARK, J., and DAVID, K.: Finite return times for measure-preserving transformations, 24.
 DAVID, K., see CLARK, J., 24.
 DRESS, A.W.M.: A combinatorial theory of Grünbaum's new regular polyhedra, Part I: Grünbaum's new regular polyhedra and their automorphism group, 252.
 FISCHER, P., and MOKANSKI, J.P.: A class of symmetric biadditive functionals, 169.
 FUJI-HARA, R., and VANSTONE, S.A.: Recursive constructions for skew resolutions in affine geometries, 242.
 HARTMANN, E.: Über Moufang-Ovale, 188.
 HARTZMANN, C.S., and NAUGLER, D.R.: Separatrix conditions yielding either periodic orbits or unusual behavior for flows on M^3 , 175.
 HOFBAUER, J.: A representation of Sheffer polynomials in terms of a differential equation for their generating functions, 156.
 HOUSMAN, D.: Enumeration of hamiltonian paths in Cayley diagrams, 80.

- ISBELL, J.: Zero sets of polynomials in finite rings, 76.
 KLARNER, D.A., and WOODWORTH, P.: Asymptotics for coefficients of algebraic functions, 236.
 KOMINEK, Z.: On the continuity of Q -convex functions and additive functions, 146.
 LAWRENCE, J.: The Shannon kernel of a non-negative information function, 233.
 LUTZ, D.: On bounded time-dependent perturbations of operator cosine functions, 197.
 MEIR, A., and MOON, J.W.: The outer-distance of nodes in random trees, 204.
 MOKANSKI, J.P., see FISCHER, P., 169.
 MOON, J.W., see MEIR, A., 204.
 NAUGLER, D.R., see HARTZMAN, C.S., 175.
 PINKUS, A.: Bernstein's comparison theorem and a problem of Braess, 98.
 RUBINSTEIN, Z.: Characteristic functional equations of polynomials and the Morera-Carleman theorem, 108.
 SANE, S.S.: On the theorems of Drake and Lenz, 223.
 STETTLER, R.: Zur Linearität 2-dimensionaler Raum-Zeit-Transformationen, 266.
 ŚWIATAK, H.: On alternatives equivalent to the Cauchy functional equation and a related equation, 66.
 TAYLOR, W.: Hyperidentities and hypervarieties, 30.
 VANSTONE, S.A., see FUJI-HARA, R., 242.
 WANG, KAI: A generalization of group difference sets and the matrix equation $A^m = dI + \lambda J$, 212.
 WOODWORTH, P., see KLARNER, D.A., 236.

Report of Meeting

- The Nineteenth International Symposium on Functional Equations, May 3 – May 13, 1981, Nantes and La Turballe, France, 118.

Bibliographies

Works on functional equations VII, 277.

Problems and Solutions

Problems and Solutions, 312.

Short Communications

ASANOV, G.S.: Variational principle for the Finslerian extension of general relativity, 319.

ASANOV, G.S., and KIRNASOV, E.G.: On Finsler spaces satisfying the T-condition, 318.

COWEN, C.C.: Analytic solutions of Böttcher's functional equation in the unit disk, 317.

FISCHER, P., and MOKANSKI, J.P.: A class of symmetric biadditive functionals, 124.

HARTZMAN, C.S., and NAUGLER, D.R.: Separatrix conditions yielding either periodic orbits or unusual behavior for flows on M^3 , 125.

HOFBAUER, J.: A representation of Sheffer polynomials in terms of a differential equation for their generating functions, 128.

KIRNASOV, E.G., see ASANOV, G.S., 318.

KOMINEK, Z.: On the continuity of Q-convex functions and additive functions, 127.

MOKANSKI, J.P., see FISCHER, P., 124.

NAUGLER, D.R., see HARTZMAN, C.S., 125.

PETERS, J.V.: A combinatoric proof of Benford's law, 122.

PHAM SON: Embedding quasi-metric spaces in Hilbert space, 315.

SURYANARAYANA, D.: Note on the functional equation $S(m,n)F[n/(m,m)] = F(n)h[n/(m,n)]$, 123.

Erratum

ROBBINS, D.P.: The bias of three pseudo-random shuffles, Volume 22, 2/3 (1981), p.268-292, 320.